AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An inverter circuit for discharge lamps for multi-lamp lighting, said circuit comprising:

at least two coils connected to a secondary winding of a step-up transformer of the inverter circuit, ~~are arranged,~~ the at least two coils being arranged and magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes generated ~~thereby~~ by the at least two coils are opposed to each other to cancel out, the at least two coils being configured to ensure a sufficient inductance for the shunting transformer,

discharge lamps connected to said coils, respectively, with currents flowing therethrough being balanced with each other, wherein a large number of discharge lamps are arranged as backlights in a surface light source,

an electric conductor being arranged adjacent to said discharge lamps, wherein parasitic capacitances are generated between said discharge lamps and said adjacent conductor, said parasitic capacitances ~~are~~ being generated in response to said backlights being added to each other as appropriate via said shunt transformer,

the discharge lamps ~~placed in~~ arranged as said backlights comprising an electrode portion and a positive column,

wherein

an impedance characteristic of the electrode portion and the positive column of each of said discharge lamps ~~and the positive column~~ has a negative resistance

characteristic, ~~and wherein lighting of each of said discharge lamps is caused by the fact that~~

the inductance of the shunting transformer is sufficient to cause a reactance of ~~an~~ the inductance ~~related to balancing operation~~ of said shunt transformer to exceed the negative resistance of each of said discharge lamps during the current balancing operation, thereby causing each of said discharge lamps to be lit, said reactance being in an operating frequency of the inverter circuit,

a shunt circuit is formed by arranging a plurality of shunt transformers such that said shunt transformers are connected to each other in the form of a tournament tree, whereby shunt transformers are sequentially connected to each other to form a multi-tier structure,

two windings of coils of each shunt transformer in the multi-tier structure are wound such that magnetic fluxes generated by said respective windings are opposed to each other, and

for each tier in the multi-tier structure, one end of each of said two windings are connected to each other, with each of the other ends of said two windings being connected to the connected ends of two windings of a shunt transformer in a subsequent tier, except for the last tier in the multi-tier structure in which the other ends of said two windings are connected to respective discharge lamps. ~~, exceeds a negative resistance of each of said discharge lamps.~~

2. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, wherein when one of said discharge lamps connected to said shunt transformer is not lighted, a core of said shunt transformer is saturated by a current flowing through a lighted said discharge lamps, whereby a voltage having a high peak value is generated at a terminal of said unlighted discharge lamp of said shunt transformer, thereby applying a high voltage to said unlighted discharge lamp to light said unlighted discharge lamp.

Claims 3-4 (Canceled)

5. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, wherein

a shunt circuit is formed by arranging a plurality of shunt transformers according to a plurality of stages, such that a connecting relationship is formed in a turnaround fashion between coils of the plurality of shunt transformers, each stage being ~~said shunt circuit is~~ formed by connecting one coil of a corresponding shunt transformer to a respective one of said discharge lamps, and connecting the other coil of the corresponding shunt transformer to a coil of a shunt transformer ~~in~~ that corresponds to a next stage, ~~connecting said other coil of said shunt transformer in said next stage, to one coil of a shunt coil in a further next stage, and providing a required number of similar connections such that a connecting relationship is formed in a turnaround fashion between all coils of shunt transformers,~~

_____and ~~wherein~~ said shunt transformers of said shunt circuit have a sufficient leakage inductance, thereby accommodating errors in an effective transformation ratio of each of said shunt transformers to thereby cause said lamp currents of said plurality of discharge lamps to be simultaneously balanced with each other.

6. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, ~~including~~ wherein said shunt transformer is configured to have three or more coils arranged such that magnetic fluxes generated by said respective coils are opposed to each other to cancel out, whereby respective lamp currents of discharge lamps connected to said coils are simultaneously balanced with each other.

7. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to ~~any one of claims 4 and~~ claim 6, wherein

_____a shunt circuit is formed by arranging a plurality of shunt transformers according to a plurality of stages, such that a connecting relationship is formed in a turnaround fashion between coils of the plurality of shunt transformers, each stage being ~~said shunt circuit is~~ formed by connecting one coil of a corresponding shunt transformer to a respective one of said discharge lamps, and connecting the other coil of the corresponding shunt transformer to a coil of a shunt transformer ~~in a~~ that corresponds to a next stage, ~~connecting said other coil of said shunt transformer in said next stage, to one coil of a shunt coil in a further next stage, and providing a required number of similar~~

~~connections such that a connecting relationship is formed in a turnaround fashion between all coils of shunt transformers,~~

and ~~wherein~~ said shunt transformers of said shunt circuit have a sufficient leakage inductance, thereby accommodating errors in an effective transformation ratio of each of said shunt transformers to thereby cause said lamp currents of said plurality of discharge lamps to be simultaneously balanced with each other.

8. (Currently Amended) ~~The~~ An inverter circuit for discharge lamps for multi-lamp lighting said circuit comprising:

at least two coils connected to a secondary winding of a step-up transformer of the inverter circuit, the at least two coils being arranged and magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes generated by the at least two coils are opposed to each other to cancel out, the at least two coils being configured to ensure a sufficient inductance for the shunting transformer,

discharge lamps connected to said coils, respectively, with currents flowing therethrough being balanced with each other, wherein a large number of discharge lamps are arranged as backlights in a surface light source,

an electric conductor being arranged adjacent to said discharge lamps, wherein parasitic capacitances are generated between said discharge lamps and said adjacent conductor, said parasitic capacitances being generated in response to said backlights being added to each other as appropriate via said shunt transformer,

the discharge lamps arranged as said backlights comprising an electrode portion and a positive column, ~~according to claim 1,~~

wherein ~~when said~~

an impedance characteristic of the electrode portion and the positive column of each of said discharge lamps has a negative resistance characteristic,

the inductance of the shunting transformer is sufficient to cause a reactance of the inductance of said shunt transformer to exceed the negative resistance of each of said discharge lamps during the current balancing operation, thereby causing each of said discharge lamps to be lit, said reactance being in an operating frequency of the inverter circuit,

a shut circuit is formed by arranging a plurality of shunt transformers such that shunt coils of the plurality of shunt transformers are connected to form a multi-tier structure, shunt coils associated with at least one tier in the multi-tier structure being operably connected to the discharge lamps, and

a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

9. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, wherein said step-up transformer is replaced by a piezoelectric transformer.

Claim 10 (Canceled)

11. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, including diodes each having one end thereof connected to a junction point connecting each winding of said shunt transformer and an associated one of said discharge lamps, the other ends of said diodes being connected into one, ~~forms~~ to form a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.

Claim 12 (Canceled)

13. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, wherein said two coils of each shunt transformer have obliquely-wound windings.

Claims 14-15 (Canceled)

16. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 2, wherein

_____a shunt circuit is formed by arranging a plurality of shunt transformers according to a plurality of stages, such that a connecting relationship is formed in a turnaround fashion between coils of the plurality of shunt transformers, each stage being ~~said shunt~~

~~circuit is~~ formed by connecting one coil of a corresponding shunt transformer to a respective one of said discharge lamps, and connecting the other coil of the corresponding shunt transformer to a coil of a shunt transformer ~~in~~ that corresponds to a next stage, ~~connecting said other coil of said shunt transformer in said next stage, to one coil of a shunt coil in a further next stage, and providing a required number of similar connections such that a connecting relationship is formed in a turnaround fashion between all coils of shunt transformers,~~

and ~~wherein~~ said shunt transformers of said shunt circuit have a sufficient leakage inductance, thereby accommodating errors in an effective transformation ratio of each of said shunt transformers to thereby cause said lamp currents of said plurality of discharge lamps to be simultaneously balanced with each other.

17. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 2, including said shunt transformer configured to have three or more coils arranged such that magnetic fluxes generated by said respective coils are opposed to each other to cancel out, whereby respective lamp currents of discharge lamps connected to said coils are simultaneously balanced with each other.

18. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 2, wherein when ~~said~~ a shunt circuit is formed by arranging a plurality of shunt transformers such that shunt coils of the plurality of shunt transformers are connected to form a multi-tier structure, a reactance value of an upper shunt coil is

sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

19. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, ~~4,~~ wherein when said shunt coils are connected to form a multi-tier structure, a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

20. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 5, wherein when said shunt coils are connected to form a multi-tier structure, a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

21. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 6, wherein ~~when said~~ a shunt circuit is formed by arranging a plurality of shunt transformers such that shunt coils of the plurality of shunt transformers are connected to form a multi-tier structure, and a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

22. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 7, wherein when said shunt coils are connected to form a multi-tier structure, a reactance value of an upper shunt coil is sequentially reduced in comparison with that of a lower shunt coil, whereby a number of turns of shunt coils is progressively reduced.

23. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 2, including diodes each having one end thereof connected to a junction point connecting each winding of said shunt transformer and an associated one of said discharge lamps, the other ends of said diodes being connected into one, ~~forms~~ to form a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.

24. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 1, ~~4,~~ including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps becomes abnormal, wherein

one end of each ~~having one end thereof~~ diode in the detection circuit is connected to a junction point ~~connecting each~~ at which a respective winding of said shunt transformer ~~and~~ is connected to an associated one of said discharge lamps, and

the other end ~~ends~~ of ~~said diodes being~~ each diode in the detection circuit is connected to a junction point at which the windings of said shunt transformer are

connected together. ~~into one, forms a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.~~

25. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 5, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps become abnormal, wherein

one end of each ~~having one end thereof~~ diode in the detection circuit is connected to a junction point ~~connecting each~~ at which a respective winding of said shunt transformer and an associated one of said discharge lamps, and

the other end ~~ends~~ of ~~said diodes being~~ diode in the detection circuit is connected to a junction point at which the windings of the shunt transformer are connected. ~~into one, forms a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.~~

26. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 6, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps becomes abnormal, wherein

one end of each ~~having one end thereof~~ diode in the detection circuit is connected to a junction point ~~connecting each~~ at which a respective winding of said shunt transformer ~~and~~ is connected to an associated one of said discharge lamps, and

the other end ~~ends~~ of ~~said diodes being~~ each diode in the detection circuit is connected to a junction point at which the windings of said shunt transformer are connected together. ~~into one, forms a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.~~

27. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 7, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps becomes abnormal, wherein

one end of each ~~having one end thereof~~ diode in the detection circuit is connected to a junction point ~~connecting each~~ at which a respective winding of said shunt transformer ~~and~~ is connected to an associated one of said discharge lamps, and

the other end ~~ends~~ of said ~~diodes being~~ diode is connected to a junction point at which the windings of said shunt transformer are connected together. ~~into one, forms a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.~~

28. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 8, including a detection circuit comprised of diodes, the detection circuit being configured to detect a voltage generated when any one of said discharge lamps becomes abnormal, wherein

one end of each ~~having one end thereof~~ diode in the detection circuit is connected to a junction point ~~connecting each~~ at which a respective winding of said shunt transformer ~~and~~ is connected to an associated one of said discharge lamps, and the other end ~~ends~~ of ~~said diodes being~~ each diode in the detection circuit is connected to a junction point at which the windings of said shunt transformer are connected together. ~~into one, forms a detection circuit for detecting a voltage generated when any one of said discharge lamps becomes abnormal.~~

29. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 2, wherein said two coils of each shunt transformer have obliquely-wound windings.

Claim 30 (Canceled)

31. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 5, wherein said two coils of each shunt transformer have obliquely-wound windings.

32. (Currently Amended) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 6, wherein ~~said two coils~~ each coil of each shunt transformer ~~have~~ has obliquely-wound windings.

33. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 7, wherein said two coils of each shunt transformer have obliquely-wound windings.

34. (Previously Presented) The inverter circuit for discharge lamps for multi-lamp lighting according to claim 8, wherein said two coils of each shunt transformer have obliquely-wound windings.

35. (New) A surface light source system comprising:

a shunt circuit board module including:

two coils connected to a secondary winding of a step-up transformer of the inverter circuit, the two coils being magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes generated thereby are opposed to each other to cancel out; and

an inverter circuit module including:

discharge lamps connected to said coils, respectively, with currents flowing therethrough being balanced with each other, wherein a large number of discharge lamps are arranged as backlights in a surface light source,

an electric conductor being arranged adjacent to said discharge lamps, wherein parasitic capacitances are generated between said discharge lamps and said adjacent conductor, said parasitic capacitances being generated in response to said backlights being added to each other as appropriate via said shunt transformer,

wherein:

the discharge lamps placed in said backlights comprising an electrode portion and a positive column,

an impedance characteristic of the electrode portion of each of said discharge lamps and the positive column has a negative resistance characteristic, and wherein lighting of each of said discharge lamps is caused by the fact that a reactance of an inductance related to balancing operation of said shunt transformer, said reactance being in an operating frequency of the inverter circuit, exceeds a negative resistance of each of said discharge lamps and a self-resonance frequency of the shunt transformer is higher than the operating frequency of the inverter circuit module, and

said shunt circuit board module is formed independent of the inverter circuit module, said shut circuit board module being placed on a side of said surface light source in a manner matching shunting conditions of said discharge lamps.